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Applicant: Hans Bruno Klomann

Inventor: the same as the applicant

Title in German of the object of the invention:

Verfahren zur bestmöglichen Außerhaltung des für den gesunden, menschlichen Sehvorgang erforderlichen Sauerstoffgehaltes im Auge, speziell bei Kontaktlinsenträgern

METHOD FOR THE BEST POSSIBLE MAINTENANCE OF THE EYE
OXYGEN-CONTENT, NECESSARY FOR THE HEALTHY, HUMAN VISION
IN PARTICULAR FOR WEARERS OF EYE-LENSES

(57)8 German PTO; 8JK

The significant characteristic feature of my invention, related to a method, is the combination of the adjustment of the relevant correct moisture content on the eyes' surface with the concurrent introduction of the oxygen amount, which is necessary for the maintenance of a "unclouded" vision.

It is known that in the case of too dry a conjunctivita of the eyeball, thus especially among those who wear contact lenses,

there are prescribed "artificial tear fluids", which are to be administered drop by drop.

However, the latter medicinal drugs are not conceived for oxygen therapy of the eyes. These medicinal preparations do not contain oxygen, at best inadvertent traces.

But just for the said group of patients, the introduction of oxygen into the eye is of greatest importance.

For a maximally possible high enrichment with oxygen or oxygenation e.g., 50 mg of O₂ per liter) of the various "artificial tear fluids", which are usually supplied by the pharmaceutical industry in eye-drops vials, I suggest the use of a mini[aturized] O₂-pressure equipment [miniequipment for pressurized oxygen] (travel equipment), which can be ~~used any~~ used any time by anyone.

However, the structural design of the said equipment is not an object of my invention. 8 German PTO; 8JK

Description

The invention pertains to the adjustment and maintenance of the standard oxygen content - absolutely necessary for a undisturbed, "clear" and sharp vision - on and in the intrinsic eyes, e.g., in the case of *Conjunctivitis sicca* (i.e. too dry a conjunctivita of the eyeball), and especially when contact lenses are used.

In healthy individuals, the oxygen content in the moisture

on the eye-surface could be about 10 mg of O₂/liter in open fresh air.

The guaranteeing of a completely unimpaired vision by means of the proposed improvement is of greatest importance in the street traffic.

The therapy with the help of gaseous oxygen is not unknown in the eye therapeutics. Regrettably, that therapy is bound to a ward, and the healing effect holds out only for a short time.

For a long time, the manufacturers of contact lenses are familiar with the problem of the occurring lack of oxygen, and, that is why they try - unsuccessfully, in my opinion - to create a means for redressing that problem with the help of porous lenses. However, the medical practitioners on their part prescribe thus so-called "artificial tears or lacrimation means" practically to all contact-lenses manufacturers, and also in the case of too dry a conjunctivita of the eyeball, which artificial tears the patient should administer drop by drop into his/her eye over the course of self-treatment in order for the moisture of the conjunctivita of the eyeball and of the cornea to be maintained, and also for a better gliding, in order for the friction of the contact lenses to be reduced, which administering drop by drop is to be done on an hourly basis from plastic vials, predominantly having a volume of 10 ml.

Originally called, "Ringer's solution*" [*Translator's note: An isotonic solution, claimed by the London pharmacologist Ringer (1835 - 1910), whose osmotic pressure is equal to the

pressure of the standard or normal blood (7.55 bar), namely : aqueous solution of 0.80% NaCl, 0.02 % potassium chloride; 0.02% calcium chloride, and 0.10% sodium hydrogen carbonate. The Ringer's solution contains the salts approximately in the same percentage as the blood serum and, that is why, many cells can longer maintain their life in the said solution. Also, the Ringer's solution is first and foremost also used as the tyrode solution is used, as blood substitute agent and infusion solution in the case of electrolyte and water loss." , more, significantly better products, appear on the market nowadays, packaged in a sterile way, and practically without an oxygen content, worth mentioning.

Here comes my invention, which consists in the following. I combine the lasting maintenance of the eyes' moisture - which is in any case necessary and is achieved with the help of the cited pharmaceutical moistening or humidifying agents - with a continuous oxygen therapy, applicable at home, on the travel or wherever.

Prior to the relevant administering drop by drop of the eye drops, the usual drop vials must be processed with gas, using pure oxygen [gassed with pure oxygen] under a weak pressure of, e.g., 4 bar. When the self-treatment is carried out, considerable values of the oxygen saturation of approximately 50 mg of O₂/liter are attained in the moisturizing agent as eye-refreshing, persisting oxygen showers.

The required pressurized gassing equipment, having a miniature bottle of oxygen, a possible manometer for the measurement of the pressure and a drop vial fixture, is not an object of the proposed invention. In case of emergence or when

need arises, the said equipment can be constructed in a do-it-yourself manner without difficulties, as the attached drawing shows. It is only intended as a hint to the pharmaceutical industry and to the relevant industry for the design and building of devices or contraptions.

Patent Claim

1. Method for wet therapy for eye patients, suffering of lack of oxygen, generally in the case of too dry a conjunctivita of the eyeball, especially contingent upon wearing of contact lenses.

2. Method as claimed in claim 1, characterized in that each moisturizing agent - which is well tolerated by the eyes - is concentrated under pressure with oxygen to, e.g., 50 mg of O₂/liter. The likewise only, e.g., saturated water vapor pressure of 4 bar is dependent upon the material of the drop vial, usually PE*. [*Translator's note: polyethylene].

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